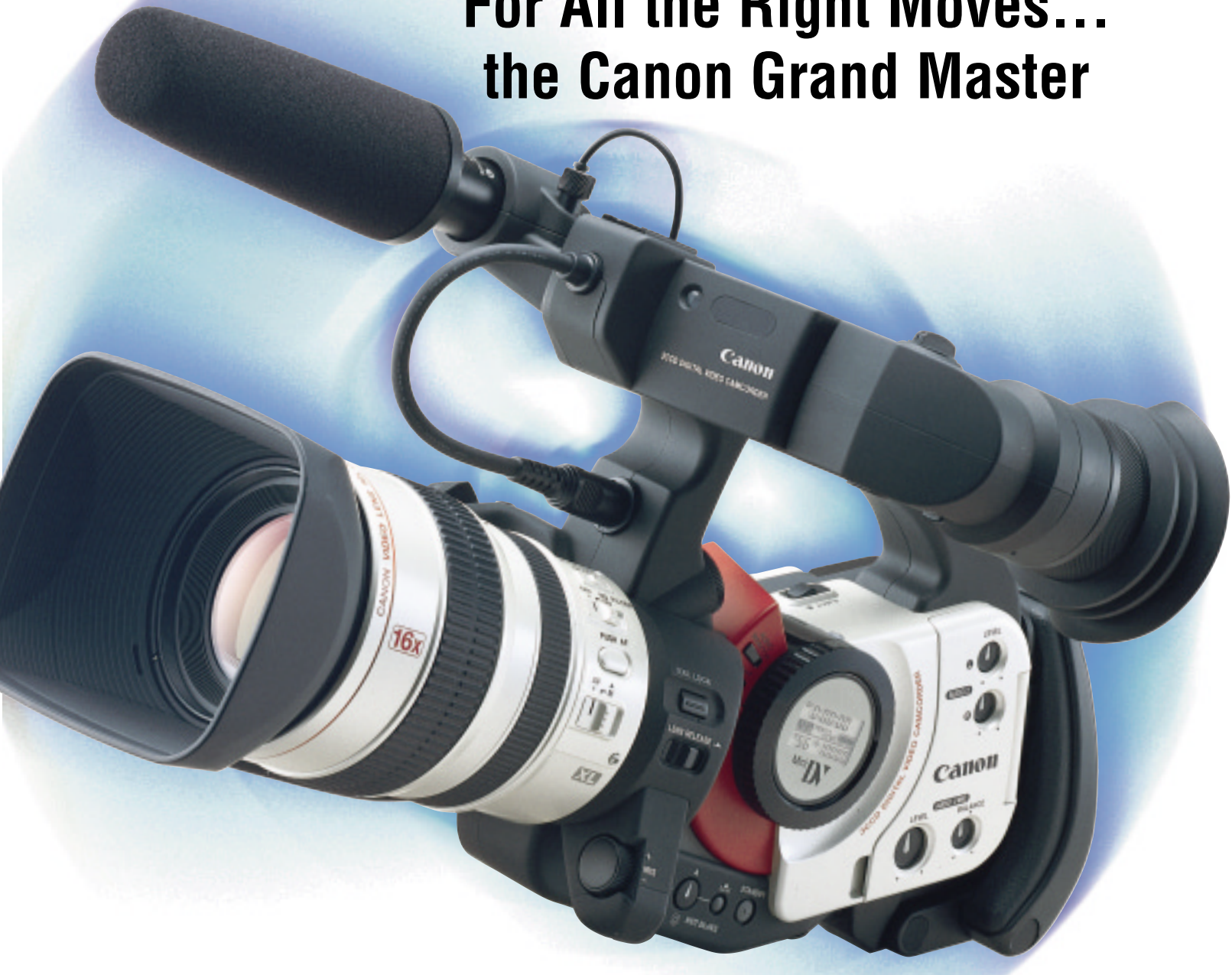
Canon

Go Digital
Go Canon

Mini DV

For All the Right Moves…
the Canon Grand Master



XL1

3CCD DIGITAL VIDEO CAMCORDER

www.canondv.com

The Full Potential of Digital Video In One Extraordinary Camcorder

Just as Canon's Hi8 camcorders have set the standard time and again, the XL1 is Canon's new flagship camcorder and the product that defines the leading edge of Digital Video.

DV format

Whether your need is broadcast production or simply the very best picture quality, the mini DV format delivers more than 500 lines of horizontal resolution – nearly a 25% improvement in picture quality over the best analog formats. The tape formulation is advanced to last longer and even withstand repeated use without failure, virtually eliminating drop out and delivering higher output and less noise.

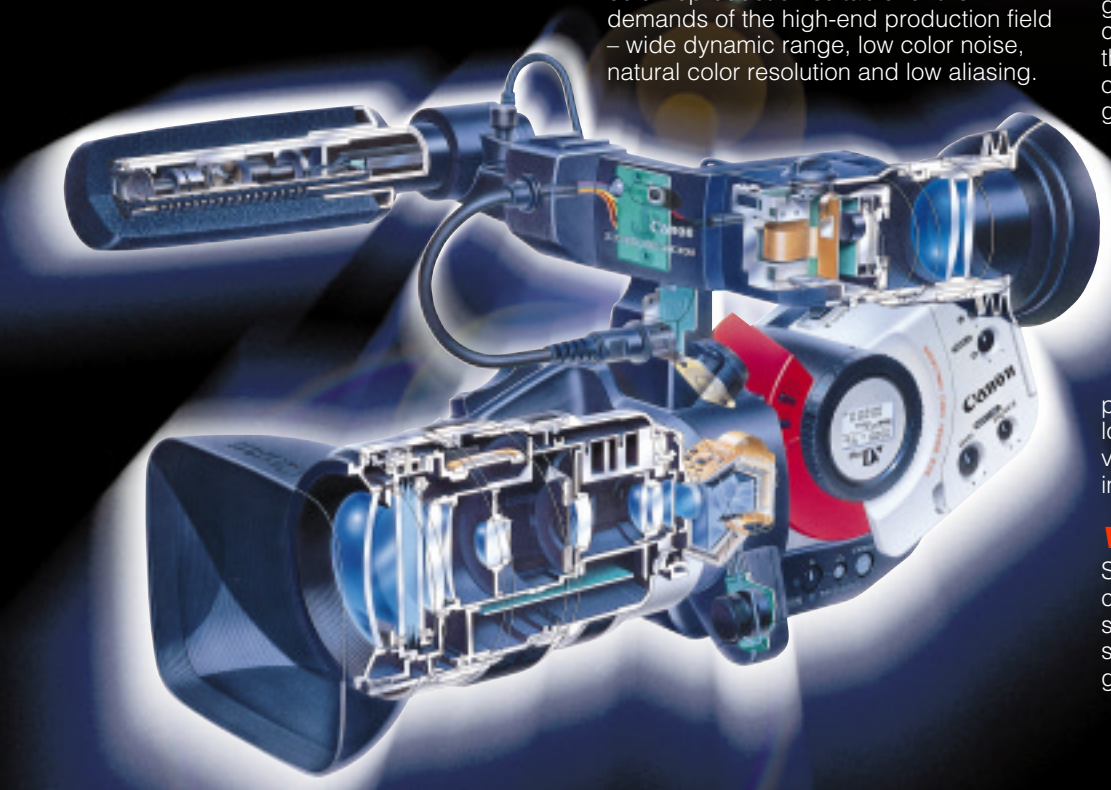
IEEE 1394 (DV Terminal)

The XL1 is equipped with a DV terminal that conforms to IEEE 1394 for digital transfer of video and sound, in addition to regular video and audio outputs. It takes just a single digital cable to edit, copy and record your video virtually free from generation loss in image and sound quality.

Achieve Super High Resolution Alongside Super Low Light Capability

3CCD

The XL1 maximizes the capability of the DV format by using a 3CCD system with a separate CCD for each primary color (red, green, blue). A beam-splitting prism precisely separates the light passing through the lens into individual color components, and each is sent to its own CCD. This process achieves outstanding detail with highly accurate color reproduction suitable for the demands of the high-end production field – wide dynamic range, low color noise, natural color resolution and low aliasing.



Pixel Shift

Canon solves common shooting dilemmas with a larger pixel size and the process of Pixel Shift, which gives wider dynamic range, better low light, reduced vertical smears, and high quality still images without sacrificing the highest resolution.

Super low Light

The XL1 incorporates three CCD image sensors, each with 270,000 pixels, specifically designed for freedom when shooting under extremely low light conditions. The size of each pixel is 72 square microns. That's 150% larger than the pixel-size on comparable models. The result is an overall 4dB improvement (approx.) in sensitivity .

The Process of Pixel Shift

Human eyes respond best to green. The green component of a video signal contains 60% of the picture detail whereas the red and blue components comprise only 40%. We have physically shifted the green CCD the equivalent distance of 1/2 pixel horizontally from the red and blue CCD, then electronically shifted the green signal 1/2 pixel vertically.

Why has Canon done this? Shifting the green CCD increases the sampling points, resulting in a rival for 410,000 pixel CCD systems in terms of resolution, while providing numerous advantages. It responds to the demands for the highest DV picture quality, combined with exceptional low light, wider dynamic range, minimal vertical smear and superior digital still images.

Vertical Smear Reduction

Shooting subjects in extremely bright conditions is handled up to professional standards with the XL1. Vertical white streaks from bright light sources are greatly reduced.

Unparalleled Optics Plus Interchangeable-lens Versatility

Mini DV Digital Video Cassette

Magnesium Alloy Body

The XL1 camcorder is designed to support extensive field use. Its chassis is mounted in a single, durable magnesium frame to provide overall strength and protection from external shock – blending twenty times the durability of ordinary camcorder bodies, with countless times the style.

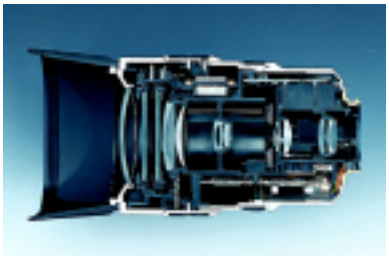
Top Grip With Recording Controls

In addition to the normal side grip, the XL1 features a carrying handle complete with a duplicate set of recording and zoom controls to better meet your individual recording style, as well as being ideal for low-angle recording.

Interchangeable Lens System

EXCLUSIVE

A super-flexible system with an unbeatable range. XL1 maximizes your options via the new XL mount system, for a potential focal range of between 24 and 2160 mm, made possible through the use of XL and EF (camera) lenses.



SuperRange Optical Image Stabilizer

NEW

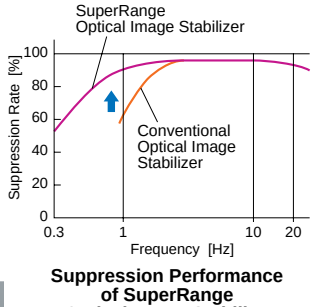
Until now, optical image stabilizers have used solely a gyro sensor to detect camcorder vibration (the data from which controls a vari-angle prism that continuously corrects the path of the incoming light). SuperRange goes one step further by examining the image *after* it is received by the CCD, and detecting any low-frequency vibrations missed by the gyro. This data is fed-back to accelerate and refine the movement of the vari-angle prism. This greatly improves performance for low frequency vibration, resulting in the most advanced optical image stabilization available today.

SuperRange OPTICAL IMAGE STABILIZER

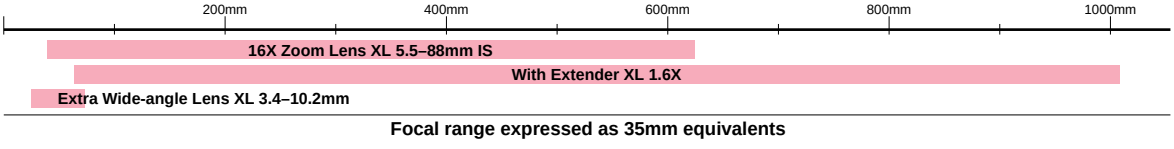
Image stabilizer ON | Image stabilizer OFF

Multi-View Finder

Whatever your position, the finder complements your point of view. Slide the high-resolution (180,000 pixel) color finder across to suit your individual line of sight – whether you use your left or right eye – and move from close-range to open-range at the flick of a switch.



Suppression Performance of SuperRange Optical Image Stabilizer



Focal range expressed as 35mm equivalents

Professional Performance In Each and Every Feature

Optical Image Stabilized 16X Zoom Lens (as standard)

An optical 16X Zoom (32X Digital) is included as standard with the XL1 –the world's longest available lens for a DV camcorder. It resolves over 600 TV lines to give an extraordinarily sharp image. By exceeding the DV standard of 500 TV lines, the Canon lens delivers greater visual "sharpness" through its higher sensitivity in the all important 100 to 250 TV line resolution area. It is fitted with a variable angle prism for image stabilization, has an ND filter, manual focus and zoom rings, plus a push AF function. You can also boost the power of XL lenses, with no loss of image sharpness, by attaching the 1.6X Extender (optional) between the XL lens and the XL1.

16X Zoom

32X Digital

... plus 1.6X Extender

EF Adapter

EXCLUSIVE

Another valuable accessory is the EF Adapter that fits onto the XL1 to allow you to use Canon EF lenses*.

3X Super Wide-Angle Zoom

An optional 3X wide-angle zoom lens will also be available (Summer 1998) to give an approximate range of 3.4 – 10.2mm (35mm film equivalent of 24 – 72mm).

*In this case, focus manually

3 Shooting Modes

The XL1 has three shooting modes to accommodate any of your recording needs.

(1) Normal Movie Mode

By merging Canon's unique optics with 3CCD (with pixel shift technology), the XL1 delivers recordings of stunning resolution and color rendition –some of the best video images ever seen outside of the TV studio. This is the video recording mode for normal use.

(2) Digital Photo Mode

Take more than 500 brilliantly clear still pictures on a single tape (in SP mode). The photo mode further distinguishes XL1 by capturing extremely high resolution still images. The camera records the still pictures for approximately 6 seconds, as well as recording the sound for your verbal notes or narration.

(3) Frame Movie Mode

This Frame Movie Mode captures exciting, high-resolution frame still images by using Pixel Shift technology. It can record an incredible 30 frame still images a second – continuously – and effectively eliminates motion flicker by capturing a full image with every scan. Because you are shooting continuously, you need never worry about missing a single moment. (Use Normal Movie mode for standard video shooting.)

Photo Search

Search through your still images, quickly and easily, wherever they are on a tape.

Programmed AE

Puts advanced recording techniques at your fingertips to ensure great results in various shooting conditions. There are six programs in all, giving you the balanced control that you have come to expect from Canon.

Spotlight

Shutter-priority/Aperture-priority (Tv/Av)

The new Tv and Av modes permit easy operation while retaining the creative image controls commonly found on Canon's 35mm SLR cameras. In the Tv mode, you select the shutter speed from 1/60 to 1/15000 of a second and the XL1 will automatically set a matching aperture. In the Av mode, you select the aperture from f/1.6 to f/16* and the XL1 automatically sets a matching shutter speed.

Tv

Av

*For the provided 16x lens

Manual Control

In addition to Tv and Av operation, the XL1 offers a complete range of manual controls, ideal for challenging situations and more creative recordings.
In particular, there is complete freedom to set the exposure at any combination of shutter speed and aperture levels. Set the gain manually to five preset levels ranging from -3 to +12dB. Set the white balance manually, or choose either the indoor or outdoor mode. Shift the exposure by up to two stops around the automatically set level.

Slow Shutter

Whether your aim is a "streaming" background when panning, or perfect low-light recording, you can choose from three slow shutter settings –1/30, 1/15 and 1/8 of a second.

SLR-Style Flash Photography

EXCLUSIVE

Attach a Canon Speedlite E-TTL flash (380EX) using the optional FA-100 Flash Adapter to use the XL1 for flash photography, just like you would with an SLR camera. The camera sets the flash duration, sending out a pre-exposure flash to ensure correct exposure before the main flash is sent out.

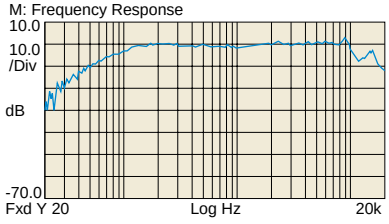
Zebra Pattern

Reveal areas of overexposure, using these diagonal stripes to guide you when setting the aperture and shutter speed.

Microphone

PCM STEREO

The XL1 comes complete with a highly sensitive microphone, that gives excellent performance in terms of frequency response.



Four-Channel Digital Audio System

EXCLUSIVE

The XL1 *listens* harder than any other camcorder, by offering three digital audio modes (16 bit for the highest sound quality, and two 12 bit modes) and by being the first camcorder to offer simultaneous recording on four channels. What is more, you can output each signal completely independently too!

Prepared for Balanced-type Microphones

The optional MA-100 Microphone Adapter/Shoulder Pad (with XLR connectors) allows you to use balanced-type microphones with the XL1. This unit also lets you attach a commercially available wireless microphone receiver plus it functions as a shoulder pad for advanced handling and control.

Time Code

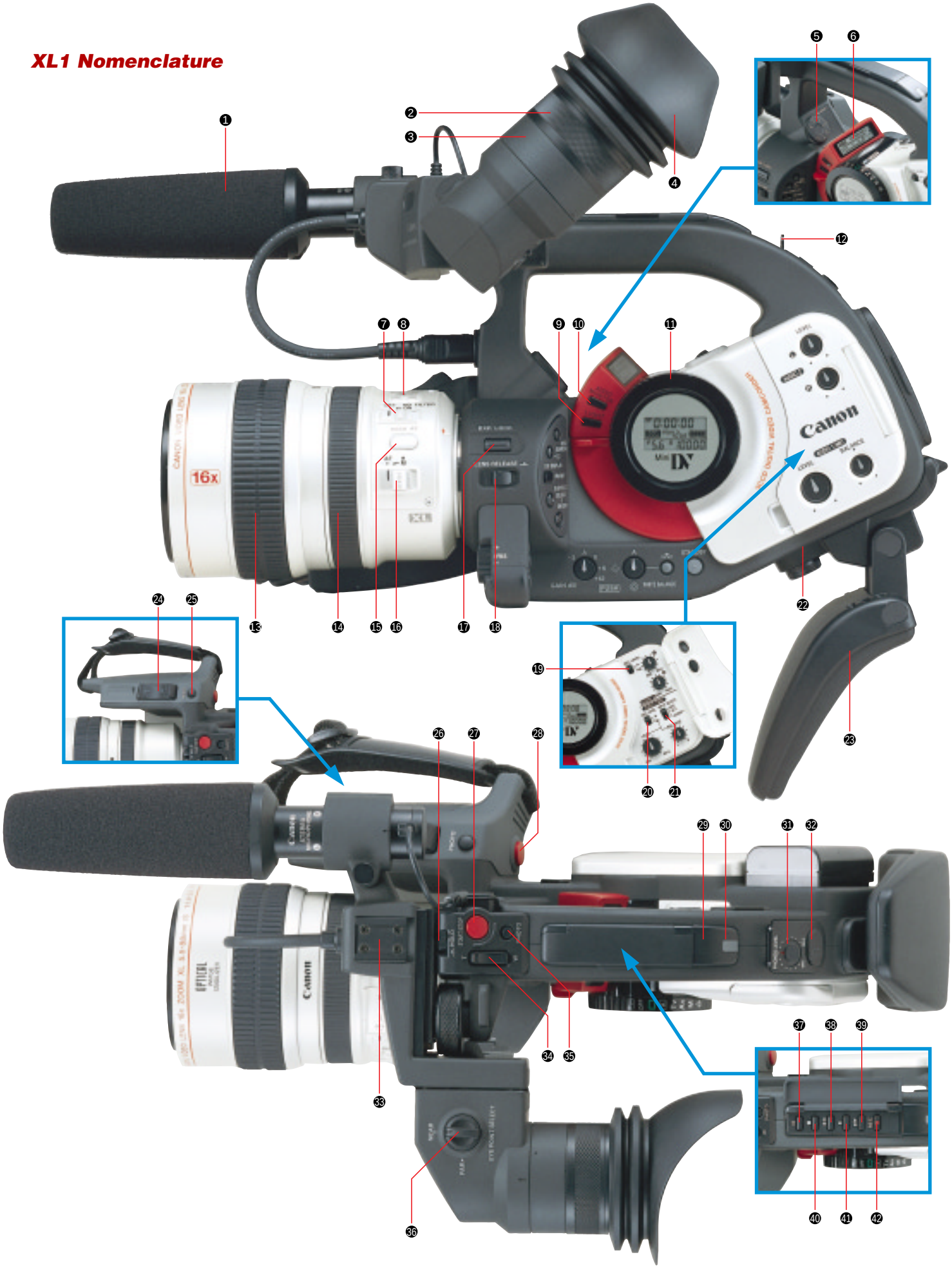
This precisely identifies each recording down to the individual frame, showing the hour, minute, second and frame in the display. The XL1 uses a "drop-frame" system that is particularly accurate.

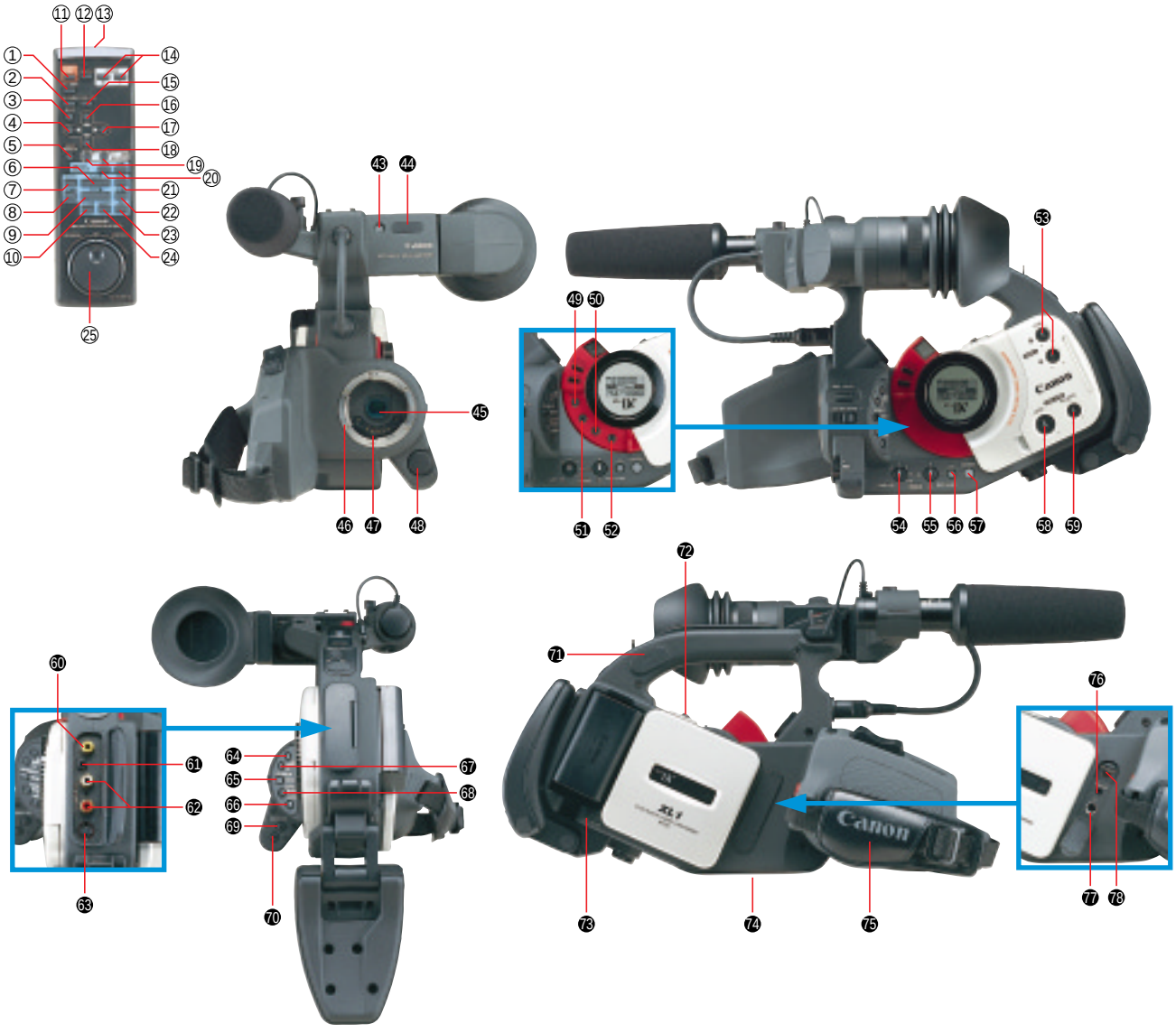
Data Code

Data code recorded separately from the video signal allows you to display or hide the date and time as required.
In addition, you can choose to display other data – shutter speed and exposure settings – alongside.

- **Self-timer**
- **Digital Fader**
- **Headphone Terminal (with level adjustment)**
- **Video and S-video terminals for analog output.**
- **LANC Terminal**
- **LP Mode**
- **Wide Screen TV Effect**
- **Remote Control with Jog/Shuttle Dial**
- **Lithium Ion Power Supply**

XL1 Nomenclature





❶ Stereo microphone
❷ Viewfinder focusing ring
❸ Viewfinder
❹ Eye cup
❺ AE Shift dial
❻ Audio LCD panel
❼ ND FILTER switch
❽ STABILIZER switch
❾ LIGHT button
❿ AUDIO MONITOR button
⓫ POWER dial
⓬ Attachment bar
⓭ Focusing ring
⓮ Zooming ring
⓯ PUSH AF button
⓰ Auto/Manual Focus switch
⓱ EXP. LOCK button
⓲ LENS RELEASE switch
⓳ REC LEVEL swich (AUDIO 2)
⓴ REC LEVEL switch
㉑ INPUT SELECT switch
㉒ Socket for Shoulder Pad SP-100, Microphone Adapter/ Shoulder Pad MA-100
㉓ Shoulder Pad SP-100
㉔ Zoom control
㉕ PHOTO button
㉖ HOLD lever
㉗ START/STOP button
㉘ start/stop button
㉙ Remote sensor
㉚ Tally lamp
㉛ PHONES LEVEL dial
㉜ 🎧 (phones) terminal
㉝ Accessory shoe
㉞ Zoom control
㉟ PHOTO button
㊱ EYE POINT SELECT switch
㊲ PAUSE ❚❚ button
㊳ REW ◀◀ button
㊴ FF ▶▶ button
㊵ STOP ■ button
㊶ ▶ PLAY button
㊷ REC ● button
㊸ Tally lamp
㊹ Remote sensor
㊺ 3CCD
㊻ XL Lens Mount
㊼ Electronic Contacts
㊽ IRIS wheel
㊾ MENU button
㊿ ▼cursor key
(51) ▲cursor key
(52) ▶cursor key
(53) L/R dials (AUDIO 2)
(54) GAIN dial
(55) White balance selector knob
(56) WHITE BALANCE set button
(57) STANDBY button
(58) LEVEL dial
(59) BALANCE dial
(60) Video terminal
(61) DC out terminal
(62) Audio 1 terminals
(63) S-video terminal
(64) RECORD SEARCH + button
(65) EVF DISPLAY button
(66) D. EFFECT ON/OFF button
(67) RECORD SEARCH – / ⏎ (record review) button
(68) D. EFFECT SELECT button
(69) SHUTTER ▲ key
(70) SHUTTER ▼ key
(71) AUDIO 2 terminal (R) AUDIO 2 terminal (L)
(72) EJECT ⏏ button
(73) BATTERY RELEASE button
(74) Tripod socket
(75) Grip belt
(76) REMOTE terminal
(77) Flash adapter terminal
(78) DV terminal
① SELF TIMER button
② ON SCREEN button
③ MENU button
④ ◀ cursor key
⑤ AUDIO MONITOR button
⑥ PLAY ▶ button
⑦ REW ◀◀ button
⑧ –/◀❚❚ (frame reverse) button
⑨ STOP ■ button
⑩ PAUSE ❚❚ button
⑪ START/STOP button
⑫ PHOTO button
⑬ Transmitter
⑭ ZOOM buttons
⑮ DATA CODE button
⑯ ▲cursor key
⑰ ▶cursor key
⑱ ▼cursor key
⑲ MIX BALANCE buttons
⑳ PHOTO SEARCH buttons
㉑ FF ▶▶ button
㉒ +/❚❚▶ (frame advance) button
㉓ x2 button
㉔ SLOW ❚▶ button
㉕ Jog/Shuttle dial

Power Sources

Lithium Ion Battery Packs
Record for up to 90 minutes with the compact BP-927.

CH-900 Dual Battery Charger/ Holder
Holds two battery packs. Can charge them consecutively and connect directly to XL1 to give twice the playback time.

CB-900 Car Battery Adapter
To charge lithium ion batteries or power the camera from a car cigarette lighter socket..

Creative Shooting Accessories

FS-72U Filter Set
Includes multiple-image, R-cross and zoom-spot filters.

EF Adapter XL
Fits onto the XL1 to allow you to use Canon EF lenses.

FA-100 Flash Adapter
Enables you to use a Speedlite flash with the XL1.

MA-100 Microphone Adapter/Shoulder Pad
Allows you to use a mic. that has XLR connectors with the XL1, plus makes shoulder-mounted shooting possible. In addition, use it to attach a wireless microphone receiver or the separately available CH-900 Dual Battery Charger/ Holder.

380EX Speedlite Flash
Attaches to the XL1 to give SLR-style flash photography. (The optional FA-100 Flash adapter is also necessary.)

Extender XL 1.6X
Fits between the XL1 and an XL lens to boost the power of the lens by 1.6X.

VL-10Li Battery Video Light
Powerful 10 W illumination. A lithium ion battery attaches directly, so operation is cable-free.

Canon Digital Videocassettes

DVM-E60
Digital Video Cassette

DVM-CL
Digital Video Head Cleaning Cassette

Carrying Accessories

HC-3000 System Case
A solid and lockable system case that provides stylish protection during transportation and storage.

Availability differs from area to area.

This mark identifies genuine Canon video accessories. When you use Canon video equipment, we recommend Canon-brand accessories or products bearing the same mark.

Canon XL1 Specifications

Power supply (rated): 7.2 V DC
Power consumption (While recording, AF=ON): 9.5 W (Approx., recording with the AF turned on)
Television system: EIA standard (525 lines, 60 fields) NTSC color signal
Video recording system: 2 rotary heads, helical scanning system
DV system (Consumer digital VCR SD system) Digital component recording
Audio recording system: PCM digital sound: 16 bit (48kHz/2ch), 12 bit (32kHz/ 2 from 4 ch), 12 bit (32kHz/4ch simultaneous)
Image sensor: 3CCD 1/3" Pixel Shift (charge coupled device) 270,000 pixels (250,000 effective pixels)
Tape format: Videocassettes bearing the (Mini DV) mark.
Tape speed: SP: 3/4 ips (18.81 mm/s); LP: 1/2 ips(12.56 mm/s)
Maximum recording time: SP: 60 minutes (with a 60 min. cassette); LP: 90 minutes (with a 60 min. cassette)
Fast forward/rewind time: 2 mins 50 sec. (with a 60 min. cassette)
Lens mount: XL Interchangeable lens system (16x zoom [supplied]: f/1.6-2.6, 5.5-88mm)
Focusing system: TTL autofocus, manual focusing possible.
Maximum shutter speed: 1/15,000 sec
Minimum illumination: 2 lx (using XL 5.5-88mm lens and slow shutter at 1/8 of a second)
Recommended illumination: More than 100 lx
Filter diameter: 72mm (XL lens)
Viewfinder: 0.7-inch, color LCD (approx. 180,000 pixels)
Microphone: Stereo electret condenser microphone
DV terminal: Special 4 pin connector (based on IEEE1394)
Output level:
Video terminal: RCA jack, 1 Vp-p/75Ω unbalanced, synchronized load
S-video terminal: 4 pin mini DIN, 1 Yp-p (Y signal), 0.286 Vp-p (C signal)
Audio terminal: RCA jack (L, R), 2 sets 4dBm (47kΩ load)/3kΩ or less, unbalanced
Input level:
Audio terminal: RCA jack (L, R) , 2 sets -11dBV/47kΩ (LINE), unbalanced -35dBV/600Ω (MIC ATT), unbalanced -55dBV/600Ω (MIC), unbalanced
Microphone terminal: ø 3.5mm stereo mini-jack, -59dBV (with 600Ω mic)/600Ω
Operating temperature range: 32˚ - 104˚ F (0˚ - 40˚ C)
Dimensions: 8 3/4 x 8 7/16 x 16 5/16 in (223 x 214 x 415 mm)
Weight (not including lens and battery pack): 3 lbs 11 15/16 oz approx. (1.7kg)
(fully loaded): 6 lbs 4 7/8 oz approx. (2.86kg)

THE CANON XL1 KIT

- XL1
- Zoom Lens 16X XL 5.5-88 mm IS
- BP-927 Battery Pack
- CA-900 Compact Power Adapter
- DC-900 DC Coupler
- SS-1000 Shoulder Strap
- WL-D2000 Wireless Controller
- SP-100 Shoulder Pad
- S-150 S-video Cable
- STV-150 Stereo Video Cable
- DVM-E30 DV Cassette
- Lens Hood

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60th Anniversary

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